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**SECTION 6. STANDARD PERMANENT STORM WATER BMPs REQUIREMENTS**

Development projects subject to standard permanent BMP requirements shall incorporate all necessary permanent BMPs into the project plans prior to submittal, regardless of project type. The City may approve proposed alternatives to the BMP requirements in this Manual if they are determined by the City to be applicable and equally effective. Also, additional BMPs, analysis, or information may be required by the City to enable staff to determine the adequacy of proposed BMPs, which will be requested through the project review process. Refer to Section 2.I.1: Permanent Storm Water BMP Requirements and Section 2.II: Prepare and Submit Appropriate Plans of this Manual for guidance in the BMP design process.

**I. Minimize Project's Impervious Footprint and Conserve Natural Areas**

The following site design options shall be considered, incorporated, and implemented where determined applicable and feasible by the developer, and as approved by the City of Chula Vista, during the site planning and approval process, consistent with applicable General Plan policies and other development regulations.

- a. Minimize impervious footprint. This can be achieved in various ways, including but not limited to, increasing building density (number of stories above or below ground) and developing land use regulations seeking to limit impervious surfaces. Decreasing the project's footprint can substantially reduce the project's impact to water quality and hydrologic conditions.
- b. Conserve natural areas where feasible. This can be achieved by concentrating or clustering development on the least environmentally sensitive portions of a site, while leaving the remaining land in a natural, undisturbed condition. The following list provides a guideline for determining the least sensitive portions of the site, in order of increasing sensitivity. Developers should also refer to the City's Multiple Species Conservation Plan or other biological regulations, as appropriate.
  - Areas devoid of vegetation, including previously graded areas and agricultural fields.
  - Areas of non-native vegetation, disturbed habitats and eucalyptus woodlands.
  - Areas of chamise or mixed chaparral, and non-native grasslands.
  - Areas containing coastal scrub communities.
  - All other upland communities.
  - Occupied habitat of sensitive species and all wetlands (as both are defined by the City of Chula Vista).
  - All areas necessary to maintain the viability of wildlife corridors.

Within each of the previous categories, areas containing hillsides (as defined in Section 3.III) should be considered more sensitive than the same category without hillsides.

- c. Construct walkways, trails, patios, overflow parking lots and alleys and other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.
- d. Construct streets, sidewalks and parking lot aisles to the minimum acceptable widths, provided that public safety and a walkable environment for pedestrians are not compromised.
- e. Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.
- f. Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.
- g. Use natural drainage systems to the maximum extent practicable.
- h. Other site design options, which are comparable and equally effective, as approved by the City Engineer.

## **II. Minimize Directly Connected Impervious Areas (DCIAs)**

Projects shall consider, incorporate, and implement the following design characteristics, where determined applicable and feasible by the City Engineer.

- a. Where landscaping is proposed, drain rooftops into adjacent landscaping prior to discharging to the storm drain.
- b. Where landscaping is proposed, drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.
- c. Other design characteristics, which are comparable and equally effective, as approved by the City Engineer.

## **III. Protect Slopes and Channels**

Project plans shall include storm water BMPs to decrease the potential for erosion of slopes and/or channels, consistent with local codes and ordinances, and where applicable, with the approval of agencies with jurisdiction over the project, e.g., the U.S. Army Corps of Engineers, the San Diego Regional Water Quality Control Board, and/or the California Department of Fish and Game. The following design principles shall be considered, and incorporated and implemented where determined applicable and feasible by the City Engineer:

- a. Convey runoff safely from the tops of slopes.
- b. Vegetate slopes with deep-rooted native or drought tolerant vegetation.
- c. Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- d. Stabilize permanent channel crossings.
- e. Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with

applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.

- f. Other design principles, which are comparable and equally effective, as approved by the City Engineer.

#### **IV. Provide Storm Drain System Stenciling and Signage**

Storm drain stencils are a highly visible source control messages, typically placed directly adjacent to storm drain inlets. The stencils contain a brief statement that prohibits the dumping of improper materials into the storm drainage system. Graphical icons, either illustrating anti-dumping symbols or images of receiving water fauna, are effective supplements to the anti-dumping message. Projects shall include the following requirements in the project design.

- a. Provide stenciling, labeling, or stamping in fresh concrete of all storm drain inlets and catch basins within the project area with prohibitive language (such as: "NO DUMPING – I LIVE DOWNSTREAM") and graphical icons to discourage illegal dumping, according to City approved designs.
- b. Post signs and prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area, according to City approved design.
- c. Maintain legibility of stencils and signs.
- d. Signage for storm drain inlets within the public right of way shall comply with the specifications included in Design Standard # CVCS-24 (see the following page).

#### **V. Design Outdoor Material Storage Areas to Reduce Pollution Introduction**

Improper storage of materials outdoors may increase the potential for toxic compounds, oil and grease, heavy metals, nutrients, suspended solids, and other pollutants to enter the storm drainage system. Where the project plans include outdoor areas for storage of hazardous materials that may contribute pollutants to the storm drainage system, the following storm water BMPs are required:

- a. Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm drainage system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.
- b. The storage area shall be paved and sufficiently impervious to contain leaks and spills, and graded to prevent run-on and run-off.
- c. The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.
- d. Other methods, which are comparable and equally effective within the project, where determined applicable and feasible by the City Engineer

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<p><b>CITY OF CHULA VISTA</b></p> <p><b>PUBLIC WORKS DEPARTMENT</b></p> <p><b>STORM DRAIN STENCIL</b></p> <p><b>AND SURFACE PLACEMENT</b></p>		<p><b>CVCS</b></p> <p><b>24</b></p>

**VI. Design Trash Storage Areas to Reduce Pollution Introduction**

All trash container areas shall meet the following requirements, with limited exclusion of detached residential homes:

- a. Paved with an impervious surface, designed not to allow run-on from adjoining areas and screened or walled to prevent off-site transport of trash.
- b. Provide roof or awning to minimize direct precipitation and prevent run-off.
- c. Other methods, which are comparable and equally effective within the project, where determined applicable and feasible by the City Engineer.

**VII. Use Efficient Irrigation Systems, Landscape Design, and Employ Integrated Pest Management Principles****1. Use Efficient Irrigation Systems**

Development projects shall design the timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm drainage system. The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible by the City Engineer:

- a. Employing rain shutoff devices to prevent irrigation during or after precipitation.
- b. Designing irrigation systems to each landscape area's specific water requirements.
- c. Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- d. Employing other comparable, equally effective, methods to reduce irrigation water runoff.

**2. Employ Integrated Pest Management Principles**

Integrated Pest Management (IPM) is an ecosystem-based pollution prevention strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant plant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment. More information may be obtained at the UC Davis website (<http://www.ipm.ucdavis.edu/WATER/U/index.html>).

- a. Eliminate and/or reduce the need for pesticide use in the project design by:

- Planting pest-resistant or well-adapted plant varieties, such as native plants.
  - Discouraging pests by modifying the site and landscaping design. Pollution prevention is the primary “first line of defense” because pollutants that are never used do not have to be controlled or treated (methods which are inherently less efficient).
- b. Distribute IPM educational materials to future site residents/tenants. At a minimum, educational materials must address the following topics:
- Keeping pests out of buildings and landscaping using barriers, screens, and caulking.
  - Physical pest elimination techniques, such as weeding, squashing, trapping, washing, or pruning out pests.
  - Relying on natural enemies to eat pests.
  - Proper use of pesticides as a last line of defense.

### **VIII. Private Roads**

The design of private roadway drainage shall use at least one of the following:

- a. Rural swale system: Direct street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.
- b. Urban curb/swale system (street slopes to curb): Install periodic swale inlets that drain to vegetated swales/biofilters.
- c. Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.
- d. Other methods, which are comparable and equally effective within the project, as approved by the City Engineer.

### **IX. Residential Driveways & Guest Parking**

The design of driveways and private residential parking areas shall use one at least of the following features:

- a. Design driveways with shared access among multiple properties, flares (single lane at street), or wheel strips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system;
- b. Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.
- c. Other features which are comparable and equally effective, as approved by the City Engineer.

**X. Dock Areas**

Loading/unloading dock areas shall include the following:

- a. Cover loading dock areas, or design drainage to preclude run-on and runoff.
- b. Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.
- c. Other features which are comparable and equally effective, as approved by the City Engineer.

**XI. Maintenance Bays**

Maintenance bays shall include the following:

- a. Repair/maintenance bays shall be indoor; or, designed to preclude run-on and runoff.
- b. Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drainage system is prohibited. If required by the City, obtain an Industrial Waste Discharge Permit.
- c. Other features which are comparable and equally effective, as approved by the City Engineer.

**XII. Vehicle Wash Areas**

Projects that include areas for washing/steam cleaning of vehicles shall use the following:

- a. Self-contained; or covered with a roof or overhang.
- b. Equipped with a clarifier or other pretreatment facility.
- c. Properly connected to a sanitary sewer, as approved by the City Engineer.
- d. Other features which are comparable and equally effective, as approved by the City Engineer.

**XIII. Outdoor Processing Areas**

Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, landfills, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the City of Chula Vista shall adhere to the following requirements.

- a. Cover or enclose areas that would be the most significant source of pollutants; slope the area toward a dead-end sump; or, discharge to the sanitary sewer



system following appropriate treatment in accordance with conditions established by the applicable sewer agency.

- b. Grade or berm area to prevent run-on from surrounding areas.
- c. Installation of storm drains in areas of equipment repair is prohibited.
- d. Other features which are comparable or equally effective, as approved by the City Engineer.

#### **XIV. Equipment Wash Areas**

Outdoor equipment/accessory washing and steam cleaning activities at projects shall meet the following requirements:

- a. Be self-contained or covered with a roof or overhang.
- b. Be equipped with a clarifier, grease trap, or other pretreatment facility, as appropriate.
- c. Be properly connected to a sanitary sewer after first obtaining a permit from the applicable sewer agency.
- d. Other features which are comparable or equally effective, as approved by the City Engineer.

#### **XV. Parking Areas**

To minimize the offsite transport of pollutants from parking areas, the following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the City of Chula Vista:

- a. Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.
- b. Outdoor parking areas should be constructed with permeable paving, where feasible and practical. Permeable paving should be strongly considered for overflow parking (parking stalls provided in excess of the City of Chula Vista's minimum parking requirements).
- c. Other design concepts, which are comparable and equally effective, as approved by the City Engineer.

#### **XVI. Fueling Area**

Fuel dispensing areas shall contain the following:

- a. Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm drainage system.

- b. Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.
- c. Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.
- d. At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.
- e. Other features which are comparable or equally effective, as approved by the City Engineer.

### **XVII. Hillside Landscaping**

- a. Hillside areas disturbed by project development shall be landscaped with deep-rooted, drought tolerant plant species selected for erosion control, satisfactory to the City of Chula Vista.
- b. Other features which are comparable or equally effective, as approved by the City Engineer.

### **XVIII. Design of Drainage Systems for Industrial/Commercial Facilities**

As required by the City and in its sole discretion, Industrial/Commercial facilities with paved outdoor areas shall avoid sheet flow of runoff to the street gutter. Instead, all outdoor paved areas shall be directed to one or more vegetated swales or storm drain sump(s) or catch basin(s) before discharging to the public street gutter and/or public storm drainage systems. The sump(s) catch basin(s) shall be equipped with Treatment Control BMPs, satisfactory to the City Engineer. Also, all private storm drainage facilities proposed shall be maintained by the property owner or approved private entity. The ongoing storm drainage systems maintenance records shall be kept on site indicating at the minimum, type of system, operator name, inspection/maintenance dates, and maintenance activity type.

Maintenance of the proposed storm water facilities would be enforced by the City in accordance with the applicable City of Chula Vista ordinances, policies, and regulations.